UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,543	12/20/2004	Jorg Schottek	LU 6001 (US)	6726

34872 7590 02/27/2007

BASELL USA INC.
INTELLECTUAL PROPERTY
912 APPLETON ROAD
ELKTON, MD 21921

EXAMINER	
LEE, RIP A	
ART UNIT	PAPER NUMBER
1713	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,543	SCHOTTEK ET AL.	
	Examiner	Art Unit	
	Rip A. Lee	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 6-8* is/are rejected.

7)☒ Claim(s) *3-5 and 9-11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10-04-2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 5 and 11 are objected to because of the following informalities: Please replace "the reaction components" with "reaction components (II) and (III)" in order to avoid lack of antecedent basis for the term "the reaction components." Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 provides for the use of a transition metal dialkyl compound, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 8 is also rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 2, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter *et al.* (U.S. 5,145,819) in view of Park *et al.* (*J. Organomet. Chem.*, 1997).

Winter *et al.* teaches a process for preparing the metallocene *rac*-$Me_2Si(2\text{-}MeInd)_2ZrMe_2$ by alkylation of *rac*-$Me_2Si(2\text{-}MeInd)_2ZrCl_2$ with 2 equivalents of MeLi in Et_2O at -10 °C, followed by stirring at room temperature (81 % yield, example V). The dichloride precursor is prepared by unexceptional reaction of the dilithium salt of the neutral ligand with $ZrCl_4$ (14 % yield, example IV). One skilled in the art realizes that the overall yield for preparation of the dimethyl complex is very low (11 %). The reference does not teach preparation of metallocene as recited in the instant claims.

Park *et al.* discloses a novel method for preparing metallocene dimethyl complexes by reaction of ligand salt with Me_2ZrCl_2. For instance, $Me_2Si(Ind)_2ZrMe_2$ may be prepared in 87 % yield by reaction of $Li_2[Me_2Si(Ind)_2]$ with Me_2ZrCl_2 in THF (section 3.10, synthesis of **4b**).

One having ordinary skill in the art would have found obvious that the synthesis of metallocenes in Park *et al.* is the method of choice because the method affords product in greater yield, thereby reducing time and cost of production (see discussion comparing reaction yields,

page 30, column 2). Although Park *et al.* does not show the preparation of metallocenes having substituted indenyl groups, *i.e.*, $Me_2Si(2\text{-}MeInd)_2ZrMe_2$, the preparation of a series of related metallocenes by this synthetic route shows the general utility of this novel method and suggests that $Me_2Si(2\text{-}MeInd)_2ZrMe_2$ may be prepared in similar fashion with a reasonable expectation of success. Therefore, it would have been obvious to one having ordinary skill in the art, upon reading that $Me_2Si(2\text{-}MeInd)_2ZrMe_2$, prepared in poor yield by the method in Winter *et al.*, may be prepared more efficiently, would have found it obvious to prepare said complex in greater yield by reaction of $Li_2[Me_2Si(2\text{-}MeInd)_2]$ with Me_2ZrCl_2, and thereby arrive at the subject matter of the instant claims. Since this process has been demonstrated to work for a series of similar metallocenes, one having skill in the art would have expected such a modification to work with a reasonable expectation of success.

Allowable Subject Matter

7. Claims 3-5 and 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3 and 9 are drawn to a process in which the metal dialkyl compound (III) is prepared at above -30 °C by combining M^1X_{x+2} with 2-2.5 equivalents of R^1M^3. Applicants have shown that compounds such as Me_2ZrCl_2 may be prepared at temperatures as high as 0 °C *via* alkylation with MeLi in THF/cumene. As indicated by Applicants (specification, page 1, line 35), it was believed previously that Me_2ZrCl_2 appeared unstable at elevated temperature. Indeed, Park *et al.* indicates that the resonance at δ 0.18, attributed to methyl protons of Me_2ZrCl_2, appears to decompose above -40 °C when monitored by variable-temperature ^1H NMR spectroscopy (page 30). It is noted that the journal article is silent with regard to experimental details and information regarding rate of decomposition, and spectra have not been furnished for further scrutiny.

One having ordinary skill in the art, relying on the information disclosed in Park *et al.*, would not have found it obvious to modify the reaction conditions as per Applicant's claims since this would appear to deleterious to the synthetic method of the prior art. Therefore, the

process steps recited in claims 3 and 9 are patentably distinct over the prior art. It follows that claims 4 and 10, drawn to combining metal dialkyl compound (III) and starting ligand (II) at above -30 °C, are also distinguished over the prior art.

Claims 5 and 11 are drawn to maintaining the reaction mixture at a temperature of from 30 °C to 150 °C for at least 10 minutes after reaction components have been combined. Both references disclose allowing the reaction mixture to warm to room temperature (23-25 °C) prior to isolation of product. It appears that stirring at room temperature is sufficient for completion of reaction, based on the prior art. There is no teaching or suggestion to heat the reaction mixture as recited in the instant claims. Absent any motivation or reason to do so, it is deemed that the subject matter of these claims is not obvious over Winter *et al.* and Park *et al.*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

ral

February 23, 2007